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Observations on Some Marine Plants of the Iowa Devonian, with Descriptions of New Genera and Species.

BY CLEMENT L. WEBSTER, M. SC.

INTRODUCTION.

In most divisions of the rocks of the Iowa Devonian, there occur at certain horizons from a few to great numbers of fossil marine plants, nearly all of them apparently referable to the "seaweeds." But little attention has thus far been paid to these most interesting forms of ancient plant life by the workers in this field, and but little reference to them has so far appeared in the literature of Iowa Devonian geology.

So far as certainly known, not a single species of any of these plant forms occurring in the lower and middle Devonian of Iowa, appears in the upper Devonian or Hackberry group. In all these divisions various species of this or other class of plant life occur, and sometimes the strata are crowded with their fossil remains. One of these localities of special interest is that at Bloody Run in Floyd County, where several genera and species occur in the rocks of the middle Devonian. Another horizon especially rich in these remains is that of the lower beds of the Upper Devonian or Hackberry group, where certain strata are crowded with them.

A critical study of these forms as they occur in the rocks of this age in Iowa, reveals much of special interest as certain of the ancient conditions existing at that time are revealed. A quite exhaustive study of these forms has for many years been conducted by me, and the results to be published in the form of a well illustrated report on them. But few if any of the forms found in the Iowa Devonian are with certainty known to occur in rocks elsewhere outside this region, and which adds great interest to this subject.

MARINE FOSSIL PLANTS.

Genus **ZEARAMOSUS**. N. Gen.

Fossil sea plants or sea weeds, attaining a medium to quite large size; main plant occurring in quite large rounded dense bunches or clusters with short rounded heavy succulent stems more or less bifurcating. From this plant springs a peculiar long and heavy compound central stalk resembling somewhat in general

structure and appearance a "bunch" of celery; character of the termination of the middle portion of this central compound stalk is unknown having been broken away, but surrounding this central portion and springing from the base, are two or more heavy rounded succulent stalks $3\frac{1}{2}$ —5 inches or more in length terminated by 3-4 large heavy elongated lobes giving to the same a unique appearance.

***Zearamosus elleria*. N. Sp.**

This species is based upon the new Genus *Zearamosus*, of this paper, which is perhaps a sufficient description of the species. It is gregarious in habit. This species covers the upper surface of a 1-2 inch bed of hard limestone low down in the stratum at Bloody Run, Iowa, three miles southeast from Charles City. There is considerable doubt as to just what sort of a sea plant or sea weed this may have been, as it appears to stand alone as to its peculiar form and structure. In this same stratum, both above and below this interesting horizon, great numbers of "fucoids" sometimes occur.

This species is named in honor of Mrs. Ella E. Webster, who is the discoverer of this unique plant form.

Now in the author's collection.

***Buthotrephis thomasia*. N. Sp.**

Fossil plant composed of thick succulent stems springing from a common "root"; stems branching; branches divergent; bifurcating; from about half an inch to three-fourths inch in height; growing singly, or in dense bunches three to four inches in diameter, and often in places covering the surface of a certain thin bed of hard limestone.

Position and locality: Central portion of the middle Devonian ("Cedar Valley") at St. Ansgér, West Mitchell, Osage, Charles City, etc., in north-central Iowa. This is a prominent and really remarkable species of sea weed in the rocks. This species is named in honor of Mr. A. O. Thomas, Professor of Geology in the Iowa State University.

Now in the author's collection.

Genus **GRACILERECTUS**. N. Gen.

Fossil sea plants or seaweeds, attaining a small to medium size; stems simple, succulent, cylindrical or sometimes compressed; broadly or sharply curved, but sometimes straight; generally distantly branched, branches sometimes opposite; surface smooth or at times irregular; terminations sharp to rounded; root of medium size, flattened or subcircular, generally constricted above, surface smooth or marked by elongated elevations.

Gracilirectus Hackberryensis. N. Sp.

Stem of this seaweed simple, surface nearly even, cylindrical or sometimes compressed, surface smooth so far as known; broadly curved; distantly branched, branches sometimes opposite. Terminations round to pointed. Diameter 1-4 to 3-4 inch; length apparently six inches to two feet or more.

This fossil, in its usual aspect, presents the appearance of numerous linea stems, often extending half a foot to two feet or more in length, and always appears in the form of casts.

Position and locality: Often crowding the strata of the lower portion of the Lower Hackberry Group (the lower part of Fenton's "Cerrogoro Sub-stage" at Mason City, Iowa, and other points. So far as known this species is restricted to the Hackberry Group.

Now in the author's collection.

Genus **FRUTICRISTATUM**. N. Gen.

Stems of this seaweed rounded, not known to attain a greater diameter than one fourth inch or slightly more, stems terminated by a tuft of long, rounded succulent branches equal in diameter to the main stem, and these branches sometimes bifurcate; surface of main stem smooth, usually straight but sometimes bent.

Fruticristatum iowense. N. Sp.

Stems of this remarkable seaweed or "fucoid," round, three-sixteenths to one-fourth inch or slightly more in diameter, three and a half to four or more inches in length. Stem terminated by a tuft of long, rounded succulent branches equal in diameter to the main stem. These branches sometimes bifurcate. Main stem smooth, usually straight but sometimes bent.

The large slab of limestone before me and whose upper face is

crowded with this really strange form, is so massed as to make a description of the species especially difficult, and may be somewhat modified when isolated forms are procured enabling this to be done. I know of no other fossil marine plant approaching this in form or general appearance.

Position and locality: Covering the surface of a certain bed of hard limestone below the two nodular *Stromatopora* beds of the upper part of the middle Devonian ("Cedar Valley"), at Bloody Run, Floyd County, Iowa, and so far as known restricted to this horizon and locality.

Now in the author's collection.

***Fruticristatum noraense*. N. Sp.**

Stem of this seaweed or "fucoid" small and slender; circular; broadly to sharply curved or bent; solitary; gradually and gracefully tapering from the base; termination sharp to rounded; generally from one-eighth to one-fourth inch in diameter near the base; varying in length from one and one half to six inches; surface apparently smooth; known only in the form of casts.

Position and locality: Occurs in considerable numbers in narrow bands of crinoidal limestone at Nora Springs, Bumgardner's quarry, at Rock Grove, at John Turner's quarry, Rockford, and other localities in the north-central part of Iowa, in the central part of the middle Devonian.

Now in the author's collection.

***Fruticristatum pervetus*. N. Sp.**

Stem compressed to sub-circular; strong and robust; quite strongly curved; surface uneven, and not otherwise marked; length unknown but apparently attaining six to eight inches; sending out strong lateral branches at intervals of an inch and a half; diameter six-eighth to three-fourths inch; root medium large, flattened or sub-circular, smooth or marked by elongated elevations, sharply constricted above; known only in the form of casts.

Position and locality: Found associated almost everywhere with *F. noraense*, and is quite abundant.

Now in the author's collection.